State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-76

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

CATERPILLAR, INC.

Pursuant to the authority vested in the Air Resources Board by Sections 43000.5, 43013 and 43018 of the Health and Safety Code; and,

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the following Caterpillar, Inc. 1998 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

Typical Equipment Usage: Industrial Equipment

Fuel Type: Diesel

Engine Family	Liters	(Cubic Inches)	Exhaust Emission Control Systems and Special Features
WCPXL15.8ERK	15.8	(966)	Turbocharger Engine Control Module Charge Air Cooler

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The total hydrocarbons (THC), carbon monoxide (CO), oxides of nitrogen (NOx), and particulate matter (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

Exhaust Emissions (g/bhp-hr)				Smoke Opacity (%)		
THC	CO	NOx	PM	Accel	Lug	Peak
1.0	8.5	6.9	0.4	20	15	50

The THC, CO, NOx and PM exhaust emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

Exhaust Emissions (g/bhp-hr)				Smoke Opacity (%)		
THC	CO	NOx	PM	Accel	Lug	Peak
0.1	0.5	6.6	0.06	6	0.1	16

BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2425 et seq.).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this 18 day of September 1998.

R. B. Summerfield, Chief
Mobile Source Operations Division

LARGE ENGINE MODEL SUMMARY

5/5/98

EO: U-R-1-76

Manufacturer: CATERPILLAR INC. Process Code: New Submission

EPA Engine Family: WCPXL15.8ERK Manufacturer Family Name: NA

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
1 Cert Engine	3456	660 @ 2100	318	224.3	2247 @ 1400	418	197.0	EM, DI, TC, ECM, CAC
2	3456	515 @ 1800	282	170.6	2062 @ 1400	381	179.2	EM, DI, TC, ECM, CAC
3	3456	500 @ 1800	271	164.0	1986 @ 1400	368	173.2	EM, DI, TC, ECM, CAC
4	3456	475 @ 1800	259	157.1	1875 @ 1400	349	164.6	EM, DI, TC, ECM, CAC
5	3456	450 @ 1800	245	148.5	1780 @ 1400	334	157.1	EM, DI, TC, ECM, CAC
6	3456	425 @ 1800	230	139.3	1713 @ 1400	312	147.0	EM, DI, TC, ECM, CAC
7	3456	550 @ 2000	289	187.4	1986 @ 1400	362	170.5	EM, DI, TC, ECM, CAC
8	3456	526 @ 2000	261	175.3	1853 @ 1400	340	160.1	EM, DI, TC, ECM, CAC
9	3456	500 @ 2000	252	169.7	1793 @ 1400	328	154.4	EM, DI, TC, ECM, CAC
10	3456	475 @ 2000	241	162.3	1705 @ 1400	312	146.8	EM, DI, TC, ECM, CAC
11	3456	450 @ 2000	227	152.4	1595 @ 1400	291	137.0	EM, DI, TC, ECM, CAC
12	3456	425 @ 2000	211	142.2	1505 @ 1400	276	129.9	EM, DI, TC, ECM, CAC
13	3456	550 @ 1800	303	183.2	2213 @ 1400	418	197.0	EM, DI, TC, ECM, CAC
14	3456	525 @ 1800	287	174.1	2106 @ 1400	389	183.3	EM, DI, TC, ECM, CAC
15	3456	500 @ 1800	271	164.0	1986 @ 1400	368	173.2	EM, DI, TC, ECM, CAC
16	3456	475 @ 1800	259	157.1	1875 @ 1400	349	164.6	EM, DI, TC, ECM, CAC
17	3456	450 @ 1800	245	148.5	1780 @ 1400	334	157.1	EM, DI, TC, ECM, CAC
18	3456	601 @ 2100	293	207.0	2067 @ 1400	384	180.8	EM, DI, TC, ECM, CAC
19	3456	575 @ 2100	278	196.7	1958 @ 1400	363	170.8	EM, DI, TC, ECM, CAC
20	3456	550 @ 2100	265	186.9	1856 @ 1400	343	161.6	EM, DI, TC, ECM, CAC
21	3456	525 @ 2100	253	179.0	1776 @ 1400	326	153.7	EM, DI, TC, ECM, CAC
22	3456	630 @ 2100	311	219.6	2160 @ 1400	402	189.3	EM, DI, TC, ECM, CAC
23	3456	600 @ 2100	293	206.7	2071 @ 1400	381	179.6	EM, DI, TC, ECM, CAC
24	3456	565 @ 2100	273	193.1	1932 @ 1400	358	168.4	EM, DI, TC, ECM, CAC
25	3456	625 @ 2100	302	213.2	2172 @ 1400	402	189.1	EM, DI, TC, ECM, CAC
26	3456	575 @ 2100	279	197.0	2003 @ 1400	369	173.7	EM, DI, TC, ECM, CAC
27	3456	575 @ 2100	275	194.6	1935 @ 1400	359	168.9	
28	3456	630 @ 2100	265	187.0	1847 @ 1400	340	160.0	
29	3456	525 @ 2100	252	178.0	1766 @ 1400	328	154.5	TC-ECM, CAC
30	3456	600 @ 2100	287	202.6	2026 @ 1400	377	177.5	
31	3456	515 @ 2100	242	171.0	1744 @ 1400	320	150.9	